AUTODOME 4000 Mini PTZ Dome

VEZ-400 Series

BOSCH

en Operations Manual

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1 Safety

Before installing and operating the camera, please read this manual carefully.

1.1 Safety precautions

Danger!
High risk: This symbol indicates an imminently hazardous situation such as "Dangerous Voltage" inside the product.
If not avoided, this will result in an electrical shock, serious bodily injury, or death.

Warning!
Medium risk: Indicates a potentially hazardous situation.
If not avoided, this could result in minor or moderate bodily injury.

Caution!
Low risk: Indicates a potentially hazardous situation.
If not avoided, this could result in property damage or risk of damage to the unit.

Notice!
This symbol indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property.

1.2 Important safety instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow these instructions.
5. Do not install near any heat sources such as radiators, heaters, stoves, or other equipment (including amplifiers) that produce heat.
6. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
7. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
8. Only use attachments/accessories specified by the manufacturer.
9. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer. When a cart is used, use caution when moving the cart/apparatus combination to

avoid injury from tip-over.

10. Unplug this apparatus during lightning storms or when l unused for long periods of time. This will prevent damage to the unit from lightning and power line surges.
11. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in a way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

1.3 Important notices

Caution!

A regulated 24 VAC, 43W power supply is recommended for use with this camera for the best picture and the most stable operation. An unregulated power supply can cause damage to the camera. When unregulated power supply is applied, product warranty will be void.

Bosch recommends using the camera with a monitor that has a CCTV-quality 75 Ohm video impedance level. If your monitor is switched to high impedance, please adjust accordingly.

Do not attempt to disassemble the camera to gain access to the internal components. Refer servicing to your dealer or to qualified service personnel.

Never face the camera towards the sun or any bright or reflective light. This may cause smear on the picture and possible damage to the CCD.

Do not remove the serial sticker for the warranty service.

All-pole power switch - Incorporate an all-pole power switch, with a contact separation of at least 3 mm in each pole, into the electrical installation of the building. If it is needed to open the housing for servicing and/or other activities, use this all-pole switch as the main disconnect device for switching off the voltage to the unit.

Camera grounding - For mounting the camera in potentially damp environments, ensure to ground the system using the ground connection of the power supply connector (see section: Connecting external power supply).

Camera lens - An assembled camera lens in the outdoor housing must comply and be tested in accordance with UL/IEC60065. Any output or signal lines from the camera must be SELV or

Limited Power Source. For safety reasons, the environmental specification of the camera lens assembly must be within the environmental specification of -10 °C (14 °F) to 50 °C (122 °F).

Camera signal - Protect the cable with a primary protector if the camera signal is beyond 140 feet, in accordance with *NEC800 (CEC Section 60)*.

Coax grounding:

– Ground the cable system if connecting an outside cable system to the unit.
– Connect outdoor equipment to the unit's inputs only after this unit has had its grounding plug connected to a grounded outlet or its ground terminal is properly connected to a ground source.
– Disconnect the unit's input connectors from outdoor equipment before disconnecting the grounding plug or grounding terminal.
– Follow proper safety precautions such as grounding for any outdoor device connected to this unit.

U.S.A. models only - *Section 810* of the *National Electrical Code, ANSI/NFPA No.70* provides information regarding proper grounding of the mount and supporting structure, grounding of the coax to a discharge unit, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Disposal - Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances, which have reached the end of their working life, must be collected and disposed of separately from household waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, per *European Directive 2002/96/EC*.

Electronic Surveillance - This device is intended for use in public areas only. U.S. federal law strictly prohibits surreptitious recording of oral communications.

Environmental statement - Bosch has a strong commitment towards the environment. This unit has been designed to respect the environment as much as possible.

Electrostatic-sensitive device - Use proper CMOS/MOS-FET handling precautions to avoid electrostatic discharge. NOTE: Wear required grounded wrist straps and observe proper ESD safety precautions when handling the electrostatic-sensitive printed circuit boards.

Fuse rating - For protection of the device, the branch circuit protection must be secured with a maximum fuse rating of 16A. This must be in accordance with *NEC800 (CEC Section 60)*.

Moving - Disconnect the power before moving the unit. Move the unit with care. Excessive force or shock may damage the unit and the hard disk drives.

Outdoor signals - The installation for outdoor signals, especially regarding clearance from power and lightning conductors and transient protection, must be in accordance with *NEC725* and *NEC800 (CEC Rule 16-224* and *CEC Section 60)*.

Permanently connected equipment - Incorporate a readily-accessible disconnect device in the building installation wiring.

Pluggable equipment - Install the socket outlet near the equipment so that it is easily accessible.

Power resupply - If the unit is forced to power down due to exceeding the specified operating temperatures, disconnect the power cord, wait for at least 30 seconds, and then reconnect the power cord.

Power lines: Do not locate the camera near overhead power lines, power circuits, or electrical lights, nor where it may contact such power lines, circuits, or lights.

Rack mount

– Ventilation - Do not place this unit in a built-in installation or rack without proper ventilation or adhering to the manufacturer's instructions. The equipment must not exceed its maximum operating temperature requirements.
– Mechanical loading - Properly mount the equipment in a rack to prevent a hazardous condition due to uneven mechanical loading.

SELV - All the input/output ports are Safety Extra Low Voltage (SELV) circuits. SELV circuits should only be connected to other SELV circuits.

Because the ISDN circuits are treated like telephone-network voltage, avoid connecting the SELV circuit to the Telephone Network Voltage (TNV) circuits.

The system ground is only used to comply with safety standards or installation practices in certain countries. Bosch does **not** recommend connecting system ground to safety ground unless it is explicitly required. However, if the system ground and safety ground are connected and grounding loops are causing interference in the video signal, use an isolation transformer (available separately from Bosch).

Caution!

Connecting System ground to Safety ground may result in ground loops that can disrupt the CCTV system.

Video loss - Video loss is inherent to digital video recording; therefore, Bosch Security Systems cannot be held liable for any damage that results from missing video information. To minimize the risk of lost digital information, Bosch Security Systems recommends multiple, redundant recording systems, and a procedure to back up all analog and digital information.

1.4 FCC & ICES compliance

FCC & ICES Information

(U.S.A. and Canadian Models Only)

This device complies with *part 15* of the *FCC Rules*. Operation is subject to the following conditions:

– this device may not cause harmful interference, and
– this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a **Class A** digital device, pursuant to *Part 15* of the *FCC Rules* and *ICES-003* of *Industry Canada*. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a **commercial environment**. This equipment generates, uses, and radiates radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures. If this equipment does cause harmful interference to radio or television reception, which may be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

– reorient or relocate the receiving antenna;
– increase the separation between the equipment and receiver;

– connect the equipment into an outlet on a circuit different from that to which the receiver is connected;
– consult the dealer or an experienced radio/TV technician for help.

Intentional or unintentional modifications, not expressly approved by the party responsible for compliance, shall not be made. Any such modifications could void the user's authority to operate the equipment. If necessary, the user should consult the dealer or an experienced radio/television technician for corrective action.

The user may find the following booklet, prepared by the Federal Communications Commission, helpful: *How to Identify and Resolve Radio-TV Interference Problems*. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

Informations FCC et ICES

(modèles utilisés aux États-Unis et au Canada uniquement)

Ce produit est conforme aux normes *FCC partie 15*. la mise en service est soumises aux deux conditions suivantes :

– cet appareil ne peut pas provoquer d'interférence nuisible et
– cet appareil doit pouvoir tolérer toutes les interférences auxquelles il est soumit, y compris les interférences qui pourraient influer sur son bon fonctionnement.

Suite à différents tests, cet appareil s’est révélé conforme aux exigences imposées aux appareils numériques de **Classe A** en vertu de la *section 15 du règlement* de la *Commission fédérale des communications des États-Unis (FCC)*, et en vertu de la norme ICES-003 d’Industrie Canada. Ces cexigences visent à fournir une protection raisonnable contre les interférences nuisibles quand l'appareil est utilisé dans un **environment commercial**. Cet appareil génère, utilise et émet de l'energie de fréquence radio, et peut, en cas d'installation ou d'utilisation non conforme aux instructions, engendrer des interférences nuisibles aux radiocommunications. Toutefois, rien ne garantit l'absence

d'interférences dans une installation particulière. L'utilisation de ce produit dans une zone résidentielle peut provoquer des interférences nuisibles. Le cas échéant, l'utilisateur devra remédier à ces interférences à ses propres frais. Il est possible de déterminer la production d'interférences en mettant l'appareil successivement hors et sous tension, tout en contrôlant la réception radio ou télévision. L'utilisateur peut parvenir à éliminer les interférences éventuelles en prenant une ou plusieurs des mesures suivantes:

- Modifier l'orientation ou l'emplacement de l'antenne réceptrice;
- Éloigner l'appareil du récepteur;
- Brancher l'appareil sur une prise située sur un circuit différent de celui du récepteur;
- Consulter le revendeur ou un technicien qualifié en radio/télévision pour obtenir de l'aide.

Toute modification apportée au produit, non expressément approuvée par la partie responsable de l'appareil, est strictement interdite. Une telle modification est susceptible d'entraîner la révocation du droit d'utilisation de l'appareil.
Au besoin, l'utilisateur consultera son revendeur ou un technicien qualifié en radio/télévision, qui procédera à une opération corrective.
La brochure suivante, publiée par la Commission fédérale des communications (FCC), peut s'avérer utile : *How to Identify and Resolve Radio-TV Interference Problem*s (Comment identifier et résoudre les problèmes d'interférences de radio et de télévision). Cette brochure est disponible auprès du U.S. Government Printing Office, Washington, DC 20402, États-Unis, sous la référence n° 004-000-00345-4.

1.5 Bosch notices

Danger!
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

Caution!
This is a **Class A** product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Disclaimer
Underwriter Laboratories Inc. ("UL") has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in UL's Standard(s) for Safety for Audio, Video and Similar Electronic Apparatus - Safety Requirements (UL 60065). UL Certification does not cover the performance or reliability of the security or signaling aspects of this product. UL MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY- OR SIGNALING-RELATED FUNCTIONS OF THIS PRODUCT.

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Note:
This manual has been compiled with great care and the information it contains has been verified thoroughly. The text was complete and correct at the time of printing. The ongoing development of products means that the content can change without notice. Bosch Security Systems accepts no liability for damage resulting directly or indirectly from faults, incompleteness or discrepancies between this manual and the product described.

More information
For more information please contact the nearest Bosch Security Systems location or visit www.boschsecurity.com

2 Description

This manual is a reference for programming and operating AUTODOME 4000 camera. It contains information about features, commands, and operation methods.

The AUTODOME 4000 is an autofocus, high-resolution, integrated day/night camera that is part of a larger building block for any surveillance/security system. By using multiple keyboard controllers and multiple dome cameras, no place is too large for monitoring. Extensible andflexible architecture facilitates remote control functions for a variety of external switching devices, such as DVRs.

2.1 Features

- 260X Zoom (26X Effective Optical Zoom, 10X Digital)
- Wide Dynamic Range (WDR)
- Day & Night (Auto/BW/Color)
- Pan 360° Endless Rotation
- Tilt 180° Vector scan (90° when 3D Privacy Masking is enabled)
- 99/210 Preset Positions (except Short-cut command)
- 2/8 Auto scans
- 2/8 Patterns
- 2/8 Tours (consisting of Presets, Patterns, and Scans)
- 4 Alarm inputs, 1 Alarm output (Off/N.C./N.O.)
- Programmable PTZ Speed: Proportional to Zoom ratio, changeable preset speed
- OSD with multiple display languages
- Privacy mask zones

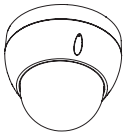
Notice!

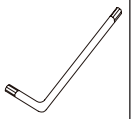
The AUTODOME 4000 Mini PTZ Dome uses a 30X zoom lens (fW=3.49 ±0.17mm fT=104.02 ±5.20mm). The polycarbonate bubble (part of the camera housing) causes image distortion, reducing the optical zoom performance. The effective optical zoom ratio is 26X +/- 10%.

3 Unpacking

This equipment should be unpacked and handled with care. If an item appears to have been damaged in shipment, notify the shipper immediately.
The original packing carton is the safest container in which to transport the unit and must be used to return the unit for service. Save it for possible future use.
Verify that all the parts listed in the Parts List are included. If any items are missing, notify your Bosch Security Systems Sales or Customer Service Representative.

3.1 Parts List

	Qty	Description
	1	AUTODOME 4000 Mini PTZ Dome camera
	1	Drilling Template
	4	6 x 30 mm plastic anchors
	4	#8 x 32 screws and attached O-rings
	4	M4 x 12 Torx screws and attached O-rings

	Qty	Description
	1	T20 Security Torx wrench
	1	User Manual (this booklet)

Warning!

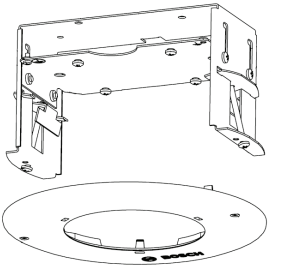
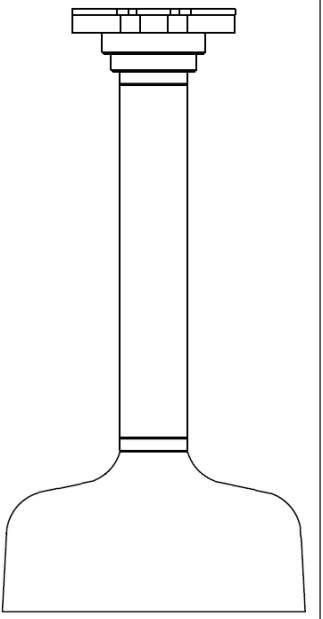
Make sure that appropriate mounting screws, rubber O-rings, and anchors are used for the surface to which the camera is mounted. The supplied plastic anchors and mounting screws are only suitable for mounting the camera on a concrete ceiling.

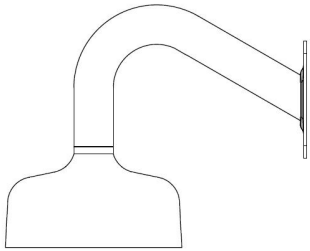
3.2 Additional Tools Required

- No. 2 Phillips screwdriver
- Drill with appropriate bit for pre-drilling anchor holes
- Appropriate tool for cutting a hole in drywall or ceiling tile (if applicable)

3.3 Accessories

The following accessories are available for the camera:

Model Number	Description	Drawing
VEZ-A4-IC	AUTODOME 4000 In-ceiling Mount (Charcoal color and white color ceiling plate included)	
VEZ-A4-PC	AUTODOME 4000 Pipe mount (Charcoal color)	
VEZ-A4-PW	AUTODOME 4000 Pipe mount (White color)	

Model Number	Description	Drawing
VEZ-A4-WC	AUTODOME 4000 Wall mount (Charcoal color)	
VEZ-A4-WW	AUTODOME 4000 Wall mount (White color)	

4 Installation Overview

The AUTODOME 4000 camera comes with the hardware and installation instructions necessary to mount the camera to a concrete ceiling.

This following mounting accessories are available (and are supplied with separate mounting instructions):

- Wall mount, used in applications where the camera is mounted to a vertical wall.
- Pipe mount, used in applications where the camera is mounted to a horizontal (high) ceiling.
- In-ceiling mount, used in applications where the camera is mounted into a recessed ceiling.

The installation should be made by qualified installation personnel and conform to the National Electrical Code and applicable local codes.

5 Installing a Surface Mount

Use the following illustration as a guide for installing the camera directly onto the ceiling (surface mount):

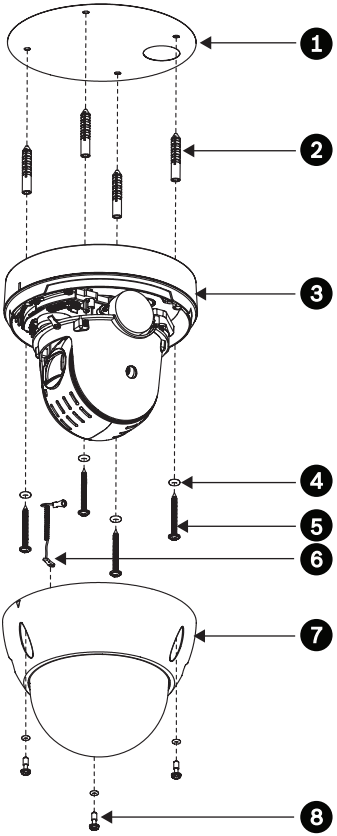


Figure 5.1: Mounting diagram

Number	Description
1	Drilling template
2	6 x 30 mm plastic anchor

Number	Description
3	Camera base
4	O-ring
5	#8 x 32 screw
6	Safety strap (will hold item #7 dome cover for easy installation)
7	Dome cover
8	M4 x 12 Torx screw

Caution!
To prevent humidity problems, the camera must be installed in dry conditions, and the cable leads should be sealed after they are connected.

1. Determine a secure location that can support the weight of the dome.
2. Use the template (refer to *, page 25*, item 1) to mark the locations of the four screw holes and the cable conduit.
3. Pre-drill the four screw holes wide enough to accept the plastic anchors.
4. Cut out the entire cable conduit hole.
5. Insert the four plastic anchors (item 2) inside the pre-drilled holes.
6. Route the cables from the camera through the conduit in the ceiling.
7. Remove the dome cover (item 6) from the camera base (item 3).

Notice!
To prevent scratches on the dome cover, Do Not Remove the plastic film protecting the dome cover until after hardware installation is complete.

8. Remove the white foam ring from the camera base, and remove the white foam sheet from the inside of the dome cover. (These are for protection during transport.)
9. Align the four screw holes on the camera base (item 3) with the four plastic anchors.

Caution!
When (re)mounting the camera base, make sure that each mounting screw has a rubber O-ring. This ensures protection against water ingress.

10. Attach the camera base to the ceiling using the four #8 x 32 screws (with O-rings attached) (item 4). Tighten the screws enough to ensure that the camera base is secured to the ceiling.
11. Make the necessary Dip Switch settings (described in chapter 4.3). **Note**: This step can also be done later, but then the dome cover must be re-opened.

Caution!
When (re)mounting the dome cover to the camera base, make sure that each screw has a rubber O-ring, and that the large rubber O-ring is in place on the camera base. This ensures protection against water ingress.

12. Align the screw holes on the dome cover (item 6) with the camera base.
13. Attach the dome cover to the camera base using the four M4 x 12 Torx screws (with O-rings (item 4) attached) using the supplied Torx wrench. Make sure that the large rubber O-ring between the camera base and dome cover is in place

to protect the camera against water ingress. Tighten the screws enough to ensure that the housing is secured to the camera base and that the rubber O-rings seal the dome cover against water ingress.

14. Remove the plastic film protecting the dome cover from scratches.

6 Connection

After the camera is mounted, connect the video, control, and power cables.

Caution!
Do not connect power to the camera until all other connections are made.

Caution!
Installation should only be performed by qualified service personnel in accordance with the National Electrical Code or applicable local codes.

Caution!
All wires for installation applications must be routed through a grounded conduit.

Caution!
To prevent humidity problems, the camera must be installed in dry conditions, and the cable leads should be sealed once connected.

Use the following illustration as a guide for preparing and connecting the wiring:

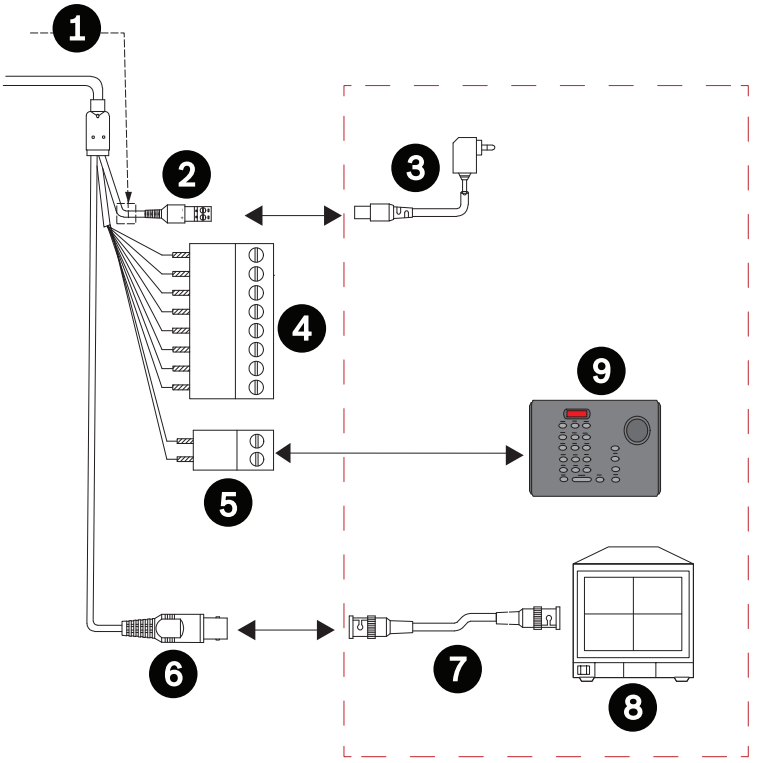


Figure 6.1: Typical wiring configuration

1	24 VAC Power In
2	Power connector with screw terminals
3	Power adapter (supplied separately) (24 VAC, Peak 2.5 A)
4	8-pin I/O terminal (Alarm In/Out)
5	2-pin data terminal (RS-485 Connection)
6	Video Out (Female BNC connector)
7	Video In to monitor (Male BNC connector)
8	CCTV Monitor
9	Bosch keyboard controller

Note: The box around several objects in the graphic above indicates that those devices are supplied separately.

6.1 RS-485 Connections

The camera can be controlled by an external device or control system using an RS-485 duplexer. The total length of the cable for communication should not exceed 1 km (3937 ft). If the distance between the camera and the control room is greater than 1 km (3937 ft), Bosch recommends using a repeater (not supplied).

Notice!
The wire shield must be tied to signal at both ends, if 2-wire twisted pair is used.

Notice!
When the RS-485 signal is looped through, ensure that (only) the last device is terminated properly. Improper RS-485 wiring or termination may result in unreliable system operation.

Use a 2-wire (shielded), half-duplex, differential, multi-drop with the following attributes:

Wire Type	2-wire Shielded Twisted Pair
Distance	1.2 Km (3937 ft)
Gauge	0.511 mm (24 AWG)
Impedance	120 Ω

Table 6.1: RS-485 Wire Specifications

The following table shows the terminal connections for the 2-pin terminal block RS-485 connections (see *, page 30*, item 5):

Number	Signal	Color
1	TRX +	Sky
2	TRX -	White

Table 6.2: 2-pin Terminal Block Connections

Notice!

When the camera's RS-485 port is connected to a MIC-BP3 Biphase convertor, the camera's TRX+ should be connected to the convertor's RxB, and TRX- should be connected to RxA. The camera's baud rate should be set to 9600, and the protocol should be set to Bosch OSRD. Also make sure that the camera ID is configured correctly. For further details on setting up the MIC-BP3, please refer to the separate MIC-BP3 Bi-Phase Converter Card Installation and Operation Manual.

6.2 Video Connection

Coaxial cable terminated with a male BNC connector is the most common method for transmitting composite video from the camera to a monitor. If the head end device features built in video termination then no termination connector is needed.

Size	O.D. between 4.6 mm (0.181 in.) and 7.9 mm (0.312 in.)
Shield	Copper braid: 95%
Central Conductor	Standard copper center
Terminal Connector	Male BNC

Table 6.3: Recommended Coax Specifications

Connecting the Video

To connect the video, do the following:

1. Terminate the coaxial cable from the head end system with a male BNC connector. Alternately, switch the head end system to 75 Ohm termination.
2. Connect the male BNC connector to the Video Out female BNC connector from the base of the camera.

6.3 Alarm Connections

The camera provides four alarm inputs and one alarm output. Each input can be activated by dry contact devices such as pressure pads, passive infrared detectors, door contacts, and similar devices. The alarm output can activate an external device, such as a buzzer.

Wire alarms either Normally Open (N.O.) or Normally Closed (N.C.); you must program the alarm inputs N.O. (the default) or N.C. through the on-screen display menus.

The following table summarizes the maximum distances for alarm wires:

Wire Size		Maximum Distance	
AWG	**mm**	**Meters**	**Feet**
22	0.644	500	152.4
18	1.024	800	243.8

Connecting the Alarms

Use the following table to connect alarm wires to the 8-pin terminal block from the camera:

Number	Signal	Color
1	NC	Yellow
2	COM	Orange
3	NO	Green
4	AL3	Blue
5	GND ALM	Black
6	AL2	Violet
7	AL1	Gray
8	AL0	Brown

Table 6.4: 8-pin Terminal Block Connections

6.4 Power Connections

Caution!
The camera unit accepts 24 VAC power only. Do not connect 120 V or 230 V to this camera!

The recommended power cable is a 2-conductor, 14-18 gauge cable, depending on the distance.

A/W	**14 AWG** (2.5 mm)	**16AWG** (1.5 mm)	**18 AWG** (1.0 mm)
2 A / 43 W (with heater)	250 m (820 ft)	150 m (492 ft)	100 m (328 ft)

6.5 Camera Settings

The camera can communicate with external switching devices such as a multiplexer or a DVR by setting the Rotary and Dip switches. Refer to the tables below for setting the camera's ID and selecting the protocol. The camera's Dip switches can be accessed by removing the dome cover, and are located on a PCB attached to the camera base.

Caution!
To prevent humidity problems, the camera's dome cover must be removed only in dry conditions.

Caution!
When (re)mounting the dome cover to the camera base, ensure that each screw has a rubber O-ring, and that the large rubber O-ring is in place on the camera base. This ensures protection against water ingress.

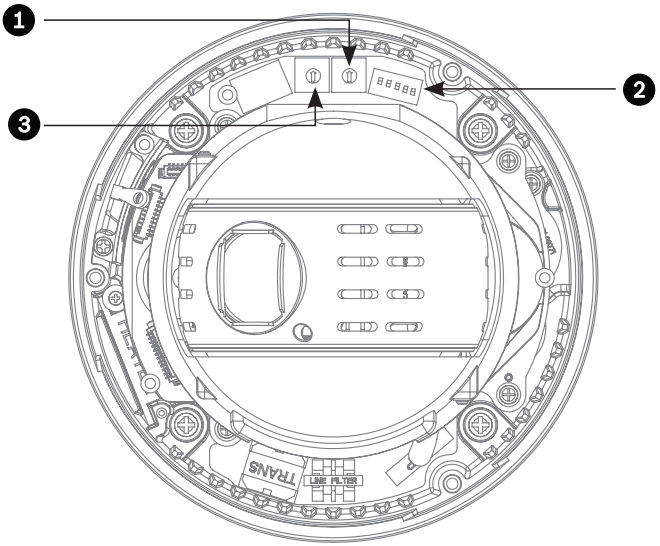


Figure 6.2: Dome Camera Switches

Number	Description
1	SW301 Rotary switch
2	SW303 Dip switches
3	SW302 Rotary switch

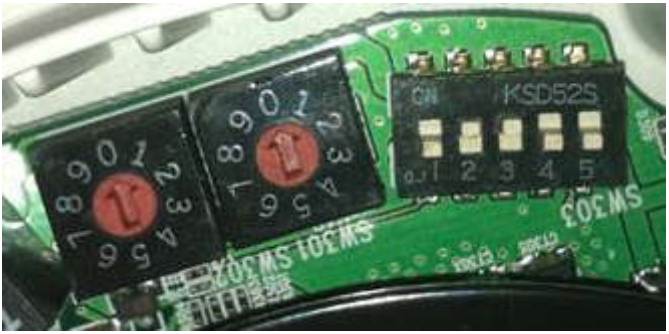


Figure 6.3: Close-up of Rotary Switches and Dip Switches

6.5.1 Setting the address (ID) of the camera

To prevent faulty operations and malfunctions, each camera must have an unique address (ID). The default setting is 0[ID001].

X0	X1
SW301	SW302

Table 6.5: Dome Camera ID Setting (Rotary Switches SW301, SW302)

6.5.2 Setting the protocol of the camera

Set the protocol setting, the baud rate, and the termination setting of dip switch SW303, using the data in the tables below. Note: The value marked * is the default setting.

No 1	No 2	Protocol
Off	On	Bosch OSRD*
Off	Off	Pelco-D/Pelco-P

Table 6.6: Camera Protocol Setting (No. 1 & 2, Dip Switch SW303)

No 3	No 4	Baud Rate (bps)
Off	Off	2400
Off	On	4800
On	Off	9600*
On	On	38400

Table 6.7: Camera Baud Rate Setting (No. 3 & 4, Dip Switch SW303)

No 5	Termination
Off	Off
On	On*

Table 6.8: Camera's RS-485 Termination Setting (No. 5, Dip Switch SW303)

Notice!
When the RS-485 signal is looped through, make sure that (only) the last device is properly terminated. Improper RS-485 wiring or termination may result in unreliable system operation.

7 On-Screen Display (OSD) Menu

Notice!

Before beginning this section of the manual, you must install and connect the camera to an interface device. Refer to the Mounting Manual. Once you have installed the camera, apply power to the camera.

When the camera is powered-up, the start-up screen appears on the monitor.

VEZ-400 MINI PTZ DOME
RS-485/9600
ID001
CAM TEST ...PASS

7.1 Basic Navigation and Common Actions

Camera operators can operate the camera by two methods:

- Use of hot keys [Refer to *Bosch Protocol, page 84*].
- Use of the OSD Menu displayed on the monitor [Continue to read this chapter].

The following table identifies the symbols that depict actions of the joystick controller, or the keys on the keyboard, that control the camera.

Notice!

The step-by-step instructions in this chapter are written with the idea that camera operators know the joystick/keyboard commands (listed in the table below) for actions (Select, Clear, Save, Exit).

Command	Action
▲	Move the joystick up to select an item.
▼	Move the joystick down to select an item.
◄	Move the joystick left to select options for an item.
►	Move the joystick right to select options for an item.
► / [Open] button / [Near] button	Move the joystick right to select, change, or save values, or to go to edit pages.
► / [Close] button / [Far] button	Move the joystick right to cancel or to exit the current menu. (Return to the previous menu without saving.)
	Turn the joystick clockwise (zoom tele).
	Turn the joystick counterclockwise (zoom wide).
[KEY]	Press the defined key.
In Bosch protocol: Aux code; In Pelco protocol: 96 + Preset or ESC button	Stop an action; camera switches to manual mode and pauses temporarily.

Notice!

You must save each state after each step of the submenu or the edit menu upon editing functions or changing settings. You may need to save settings for one function twice. For example, after {the position or the title of a Preset} is saved at the ‘Sub Menu’, {the status of the Preset Setup} must be saved at the ‘Preset Setup Menu’ again.

7.2 Main Menu

The MAIN MENU provides access to all programmable settings for the camera.
When you use Pelco-D and Pelco-P protocol with your controller, you can access the MAIN MENU on your monitor by pressing the keys [95] + [Preset], or by pressing and holding the [Menu] key for 2 seconds.
When you use Bosch OSRD protocol with your controller, you can access the MAIN MENU on your monitor by pressing the keys [ON]+[46]+[Enter].

MAIN MENU		
SYSTEM SETUP		
DISPLAY SETUP		
CAMERA SETUP		
DOME MOTION		
PRESET SETUP		
PATTERN SETUP		
TOUR SETUP		
SCAN SETUP		
ALARM SETUP		
EXIT		

MAIN MENU Choices

Menu	Description
SYSTEM SETUP	Accesses system information and actions such as: rebooting, resetting default settings, setting or resetting passwords.
DISPLAY SETUP	Accesses adjustable display settings such as: OSD, privacy zone masking, image setup, motion/face detection, and display language.
CAMERA SETUP	Accesses adjustable camera settings such as: focus/zoom, white balance, exposure, day/night, sharpness and backlight, WDR/ DNR.
DOME MOTION	Accesses adjustable pan/tilt/zoom (PTZ) settings such as: preset speed, autoflip, proportional pan/tilt, home preset, and calibration.
PRESET SETUP	Accesses preset setup.
PATTERN SETUP	Accesses pattern setup.
TOUR SETUP	Accesses tour setup.
SCAN SETUP	Accesses scan setup.
ALARM SETUP	Accesses the alarm settings such as: inputs, outputs, and rules.
EXIT	Exits the menu.

7.2.1 Editing Titles

To edit the title of a function (preset, pattern, tour, scan):

- From the **MAIN MENU**, move the joystick to the right (setup menu of preset, pattern, tour, and scan). Move the joystick to the right again to select the Title menu. The screen **TITLE** appears.

TITLE		
ABCDEFGHIJKLMNOPQRSTUVWXYZ0 123456789/+-=;?#.,"~0		
SELECT: (MOVE)		
SET/CLEAR: (TELE/WIDE)		
SAVE: (NEAR)		
EXIT: (FAR)		

1. Move the joystick right, left, up, or down to select a character.
2. Press the button [Tele] to input a character. Note: To cancel a character, press the [Wide] button.
3. When you finish entering the title, save the title. Note: To cancel the selected title, use the [Far] button to return to the previous menu.

7.2.2 Clearing Saved Functions

To clear (delete) individual, saved functions:

1. Select a function in any menu (PRESET/TOUR/PATTERN/ SCAN/ALARM).
2. Move the joystick right. Select Clear.
3. If necessary, follow additional prompts.

4. Save the settings.

7.3 System Setup Menu

SYSTEM SETUP		
INFO.		
REBOOT		
INITIALIZE	5.1	
PROTOCOL LOG		
PASSWORD		
EXIT		

From this menu, you can display system information, reboot the system, restore default settings (initialize), and set a password.

7.3.1 System Information

System Information displays details about the Model Name/ Running Version/Protocol/Communication Type/Camera ID No./ System. It is only for reference; you cannot make changes here.
To display the System Information screen:

1. From the **MAIN MENU**, select **SYSTEM SETUP**. The submenu **SYSTEM SETUP** appears.
2. Select **INFO.**. The screen **SYSTEM INFORMATION** appears.

SYSTEM INFORMATION		
VEZ-400 MINI PTZ DOME		
VEZ4 SPD V1.0.0		
VEZ4 CAM V1.0.0		
RS485/9600		
ID001		
PAL		
-Exit: (FAR)		

- Note the system information displayed. Note: The camera ID changes depending on settings.

7.3.2 Reboot

Reboot the system if there are any problems with controlling or operating the camera. Rebooting will recycle power without changing camera settings. To reboot the system:

1. From the **MAIN MENU**, select **SYSTEM SETUP**. The submenu **SYSTEM SETUP** appears.
2. Select **REBOOT**. The screen **REBOOT** appears.

REBOOT		
CONTINUE?		
YES: NEAR		
NO: FAR		

1. Select the option "Yes."
2. Select the value "Near." The system reboots.

7.3.3 Initialize

Initialize the system to restore some or all of the camera settings to their defaults. To initialize:

1. From the **MAIN MENU**, select **SYSTEM SETUP**. The submenu **SYSTEM SETUP** appears.
2. Select **INITIALIZE**. The screen **INITIALIZE** appears.

INITIALIZE		
ALL		
CAM		
PRESET		
TOUR		
PATTERN		
SCAN		
ETC		
SAVE		
BACK		

1. Select the function to initialize:
   - ALL: Clear All items saved in the system.
   - CAM: Clear camera-related settings.
   - PRESET: Clear all saved presets. (To clear presets individually, refer to *Preset Setup, page 68*.)
   - TOUR: Clear saved Tours.

- PATTERN: Clear saved Patterns.
- SCAN: Clear saved Scan items.
- [ETC: Clear other settings except camera and PTZ settings (CAM status and saved PRESET, TOUR, PATTERN and SCAN).]

2. Select the value "Clear."
3. Save. The system restores the default settings of the camera.

7.3.4 Password

Set a four-character password to prevent unauthorized access and changes to the camera settings. Users/operators must enter the valid password before programming the camera. The default password is "0000." To set/enable a password:

1. From the **MAIN MENU**, select **SYSTEM SETUP**. The submenu **SYSTEM SETUP** appears.
2. Select **PASSWORD**. The screen **PASSWORD** appears.

PASSWORD		
CURRENT		
ENABLE		
NEW		
CONFIRM		
0123456789		
-SET/CLEAR		
-EXIT		

1. Select the numbers that comprise the password.

2. Press the key {Tele}.
3. Select the option "Enable."
4. Select the value "Enable." The system locks the password.

7.4 Display Setup

DISPLAY SETUP		
OSD SETUP		
PRIVACY ZONE		
IMAGE SETUP		
MOTION/FACE		
LANGUAGE: [language]		
EXIT		

From this menu, you can set up the on-screen display, create/ edit/ delete a privacy mask, change displayed image settings, set motion/face detection, and change the display language.

7.4.1 OSD Setup

OSD Setup allows you to program how labels are displayed on the monitor and where on your monitor you want to display each label. To set up the on-screen display:

1. From the **MAIN MENU**, select **DISPLAY SETUP**. The submenu **DISPLAY SETUP** appears.
2. Select **OSD SETUP**. The screen **OSD SETUP** appears.

OSD SETUP		
LABEL POSITION		
TIME		
ZOOM		
ID		
MODE		
ANGLE		
SAVE		
BACK		
- CHANGE		
- TO SETUP		

1. Select the option "Label Position" to set/change the position of labels.
2. Select the value "On" to display the label position.
3. Press the button {Tele} to edit the position of labels.
4. Use the joystick to move the label up, down, left, and/or right.
5. Save the option.
6. Select any of the following labels to display:
   - Title (Label Position)
   - (Dwell) Time
   - Zoom (ratio)
   - (Camera) ID
   - (Operation) Mode
   - (PTZ) Angle

   Note: You can display only selected video or characters in the video. Each element may be configured.

7. Save the option.

7.4.2 Privacy Zone

A Privacy mask zone allows an administrator to program a four-sided, user-defined zone which cannot be viewed by operators. A maximum of 15 positions can be displayed on the monitor. The mask will stay in position even with changing pan and tilt angles, and will adjust in size according to the zoom ratio [Tele/Wide]. Bosch recommends setting the size of the mask to be at least twice the size (height and width) of the object being masked. The speed of displaying masks is proportional to the number of masks on the screen. To set a privacy mask zone:

1. From the **MAIN MENU**, select **DISPLAY SETUP**. The submenu **DISPLAY SETUP** appears.
2. Select **PRIVACY ZONE**. The screen **PRIVACY ZONE SETUP** appears.

PRIVACY ZONE SETUP		
PRIVACY.##		
EDIT		
DISPLAY		
WIDTH		
HEIGHT		
CLEAR		
SAVE		
BACK		

PRIVACY ZONE SETUP		
- CHANGE		

1. Select the option "Privacy."
2. Select a zone ID [00-14).
3. Select the option "Edit."
4. Select the value "Mask."
5. Move to a target (Pan/Tilt) and adjust a Mask using the joystick (Pan/Tilt, Zoom Tele or Wide).
6. Save the position.
7. Exit the menu Edit.
8. Select the option "Display."
9. Select the value "On." The mask appears.
10. Select a position.
11. Select the height (XX) and width (XX) of the mask (1~5X) to resize the mask.
12. Save the settings.
    Note: Select the option "Clear" to clear the Mask.

7.4.3 Image Setup

This menu is for changing displayed image settings. To set up image setup:

1. From the **MAIN MENU**, select **DISPLAY SETUP**. The submenu **DISPLAY SETUP** appears.
2. Select **IMAGE SETUP**. The screen **IMAGE SETUP** appears.

IMAGE SETUP		
MIRROR		
SAVE		

IMAGE SETUP		
BACK		

1. Select the option "Mirror."
2. Select the desired value for the image.
   - Normal
   - Horizontal
   - Vertical
   - H/V [Horizontal/Vertical]
3. Select the desired value
4. Save the settings.

7.4.4 Motion/Face Detection

Program the camera to monitor the movements of the image and send an alarm message to the OSD in the Alarm Out action.
To set up motion/face detection:

1. From the **MAIN MENU**, select **DISPLAY SETUP**. The submenu **DISPLAY SETUP** appears.
2. Select **MOTION/FACE**. The screen **MOTION/FACE DETECTION** appears.

MOTION/FACE DETECTION		
MD/FD		
SENSITIVITY		
ALARM		

MOTION/FACE DETECTION		
ATIME		
SAVE		
BACK		

1. Select the option "MD/FD" to program motion detection and/or face detection.
2. Select the appropriate value:
   - Off
   - MD
   - FD
3. Select the option "Sensitivity."
4. Select the appropriate value.
5. Select the option "Alarm."
6. Select the appropriate value:
   - OSD
   - Alarm Out
   - Both
7. Save the settings.

7.4.5 Language

To select a different display language:

1. From the **MAIN MENU**, select **DISPLAY SETUP**. The submenu **DISPLAY SETUP** appears.
2. Select **L ANGUAGE**. The screen **L ANGUAGE** appears.
3. Select the desired language:
   - English
   - Chinese
   - Dutch
   - French

- German
- Italian
- Russian
- Spanish

7.5 Camera Setup

CAMERA SETUP		
FOCUS/ZOOM		
W-BALANCE		
EXPOSURE		
DAY/NIGHT		
ADVANCED		
WDR/DNR		
EXIT		

From this menu, you can set the focus/zoom, white balance, auto exposure, day/night, the WDR/DNR settings, and Advanced settings.

7.5.1 Focus/Zoom

Auto Focus allows the lens to remain in focus during zoom-in, zoom-out and motion functions automatically. Zoom speed allows the user to define how fast the camera will go from full wide zoom to the 30X optical zoom. To set focus/zoom settings:

1. From the **MAIN MENU**, select **CAMERA SETUP**. The submenu **CAMERA SETUP** appears.
2. Select **FOCUS/ZOOM**. The screen **FOCUS/ZOOM SETUP** appears.

FOCUS/ZOOM SETUP		
FOCUS		
ZOOM SPD		
D.ZOOM		
SAVE		
BACK		

1. Select the option "Focus."
2. Select the appropriate value:
   - Auto
   - Manual
   - Semi-Auto
3. Select the option "Zoom Spd" to set the zoom speed.
4. Select the appropriate value:
   - Slow
   - Normal
   - Fast
   - V-Fast
5. Select the option "D.Zoom" to set the Digital Zoom.
6. Select the appropriate value: ON or OFF.
7. Save the settings.

7.5.2 WB Setup

The WB (White Balance) feature automatically processes the displayed image to retain color balance over different color temperature ranges. In Manual mode, you can change the R or B gain value to adjust the colors displayed on the monitor.
To set white balance settings:

1. From the **MAIN MENU**, select **CAMERA SETUP**. The submenu **CAMERA SETUP** appears.
2. Select **W-Balance**. The screen **WB SETUP** appears.

WB SETUP		
MODE		
R GAIN		
B GAIN		
SAVE		
BACK		

1. Select the option "Mode."
2. Select the appropriate value:
   - Auto Trace White balance (ATW): Aligns the white balance automatically. (2,300 to 11,000 K)
   - Indoor: 3200 K Base Mode
   - Outdoor: 5400 K Base Mode
   - Push WB mode: The white balance is aligned during key input. (White balance push auto key)
   - Manual WB mode: Red and Blue gain values can be set by user, 0 ~ 255
   - Auto White Balance mode (AWB): Wide range auto white balance mode. In this mode, the white balance is performed at a faster operating speed than ATW.
3. Select the option "R Gain" to set the red gain.
4. Select the appropriate value.
5. Select the option "B Gain."
6. Select the appropriate value.

7. Save the settings.

7.5.3 AE Setup

Shutter speed controls the electronic shutter. Set the shutter speed to operate automatically (Auto) or manually (Numeric Value). The Automatic Gain Control (AGC Gain or AGC Max) adjusts the brightness of the pictures. The brightness increases as the numeric value is set higher. SSNR enhances the digital noise reduction properly. There are three settings: Low/Middle/ High. When gain levels raise, SSNR will reduce the noise to display a clearer image. When Input luminance level is too dark, the Digital Slow Shutter (DSS) function is set higher automatically.

To set auto exposure settings:

1. From the **MAIN MENU**, select **CAMERA SETUP**. The submenu **CAMERA SETUP** appears.
2. Select **EXPOSURE**. The screen **AE SETUP** appears.

AE SETUP		
MODE		
SHUT		
AGC GAIN		
AGC MAX		
DSS		
BRIGHT		
SAVE		

AE SETUP		
BACK		

1. Select the option "Mode" (Auto Exposure (AE) Mode).
2. Select the appropriate values (listed in the top row of the table below):

AE Mode	**Full Auto**	**Manual**	**SHUT FIX**	**WDR**
Shutter (1/1~1/100,000)	X	O (1/1000)	O (1/1000)	X
AGC Gain (00~36dB)	X	O (06dB)	X	X
AGC Max (Off/Low/Mid/High/ Super)	O (default: High)	X	O (High)	O
DSS (0x2~0x128Fld)	O (Off)	X	X	X
Bright (00~15)	O (06)	X	O (06)	O

- Save the settings.

7.5.4 D/N Setup

The D/N (Day/Night) function improves the camera's sensitivity at night or when the brightness level of the ambient environment is low. The Day & Night filter is automatically switched according to the luminance level. To set day/night:

1. From the **MAIN MENU**, select **CAMERA SETUP**. The submenu **CAMERA SETUP** appears.
2. Select **DAY/NIGHT**. The screen **D/N SETUP** appears.

D/N SETUP		
DAY/NIGHT		
D&N DETECT		
D/N DTIME		
SAVE		
BACK		

1. Select the option "Day/Night."
2. Select the appropriate value:
   - Auto
   - Day
   - Night
3. Select the option "D&N Detect."
4. Select the appropriate value:
   - Auto
   - Sensor
   - Video
5. Select the option "D/N Dtime."
6. Select the desired time to switch between day and night mode.
7. Save the settings.

7.5.5 Advanced

Brightness increases as the numeric value is set higher. The backlight compensation function provides compensation by increasing the brightness of the overall displayed image. Subjects being shot with dark details due to backlight ,will have the correct brightness levels. Sharpness enhances the picture

detail by increasing the aperture gain of the camera and sharpening the edges in the picture. To set sharpness and backlight settings:

1. From the **MAIN MENU**, select **CAMERA SETUP**. The submenu **CAMERA SETUP** appears.
2. Select **ADVANCED**. The screen **ADVANCED SETUP** appears.

ADVANCED SETUP		
SHARPNESS		
BACKLIGHT		
SAVE		
BACK		

1. Select the option "Sharpness."
2. Set the sharpness level.
3. Select the option "Backlight."
4. Select the appropriate value: ON or OFF.
5. Save the settings.

7.5.6 WDR/DNR

When both high-brightness subjects and low-brightness subjects need to be displayed at the same time, overexposure in the high-brightness areas or a loss of dark detail in the low-brightness areas may occur. The WDR (Wide Dynamic Range) function creates images free from over-exposure or loss of dark detail by combining two images from tripping the shutter for a long exposure time and for a short exposure time in one field. The DNR (Digital Noise Reduction) function creates ’noiseless’

images, even in low light. In 'WDR on' mode, unnatural color or image, and noise, may occur in a bright area. Under special illumination, it is better to avoid using the WDR function. To set WDR and DNR settings:

1. From the **MAIN MENU**, select **CAMERA SETUP**. The submenu **CAMERA SETUP** appears.
2. Select **WDR/DNR**. The screen **WDR/DNR** appears.

WDR/DNR		
WDR SETUP		
WDR LEVEL		
DNR SETUP		
DNR LEVEL		
SAVE		
BACK		

1. Select the option "WDR Setup."
2. Select the value "On."
3. Select the option "WDR Level."
4. Set the appropriate level.
5. Select the option "DNR Setup."
6. Select the value "On."
7. Select the option "DNR Level."
8. Set the appropriate level.
9. Save the settings.

7.6 Dome Motion Setup

DOME MOTION SETUP		
GENERAL SETUP		
MOTION SETUP		
HOME ACTION		
CALIBRATION		
EXIT		

From this menu, you can set the general functions of the dome, motion functions of the pan/tilt/zoom motor, the home action, and calibration.

7.6.1 General Setup

This menu controls general functions of the camera: power-up action, turbo speed, preset speed. To set these functions:

1. From the **MAIN MENU**, select **DOME MOTION**. The submenu **DOME MOTION** appears.
2. Select **GENERAL SETUP**. The screen **GENERAL SETUP** appears.

GENERAL SETUP		
POWER-UP ACT.		
TURBO SPEED		

GENERAL SETUP		
PRESET SPEED		
SAVE		
BACK		

1. Select the option "Power-Up Act." The power-up action sets the function (preset, tour, pattern, and scan) that the system should perform when the power is cycled or after an alarm action.
2. Select the value "On" so that the system will resume its prior activity after an alarm or a power failure.
3. Select the option "Turbo Speed." This defines the pan and tilt speed during manual operation of Pan/Tilt only.
4. Select the appropriate value: ON or OFF.
5. Select the option "Preset Speed." This sets the speed when moving to a predefined preset.
6. Select the appropriate value:
   - Fast
   - Normal
   - Slow
7. Save the settings.

7.6.2 Motion Setup

This menu controls camera settings such as proportional pan/tilt, auto flip, and over tilt. To set these functions:

1. From the **MAIN MENU**, select **DOME MOTION**. The submenu **DOME MOTION** appears.
2. Select **MOTION SETUP**. The screen **MOTION SETUP** appears.

MOTION SETUP		
PROP PAN/TILT		
AUTO FLIP		
OVER TILT		
SAVE		
BACK		

1. Select the option "Prop. Pan/Tilt."
2. Select the value "On" to allow proportional pan/tilt when Zoom is set to manual.
3. Select the option "Auto Flip." This is a function that automatically reverses the image when the zoom module passes through the top of the tilt point (90 degrees).
4. Select the value "On".
5. Select the option "Over Tilt." This function restricts the vertical view angle to a specific operational range to mechanically restrict certain angles.
6. Select the appropriate value:
   - Mode 0
   - Mode 1
   - Mode 2

   Each Mode restricts the vertical minimum tilt to prevent horizontal block on the view from the camera’s cover.
7. Save the settings.

7.6.3 Home Action

The Home Action sets the function that the camera should perform after the joystick controller has been idle for predetermined amount of time. The Home Action can be set to a preset, a tour, or auto scan. The dwell time can be set from 1 second to 60 seconds and from 1 minute to 60 minutes.

Notice!
In order to call an action (Preset, Pattern, Tour, or Scan), you must configure Preset, Pattern, Tour, or Scan first.

1. From the **MAIN MENU**, select **DOME MOTION**. The submenu **DOME MOTION** appears.
2. Select **HOME ACTION**. The screen **HOME ACTION SETUP** appears.

HOME ACTION SETUP		
ACTION		
NUMBER		
TIME		
MODE		
SAVE		
BACK		

1. Select the option "Action."
2. Select the appropriate value:
   – Home

- Preset
- Scan
- Tour

3. Select the option "Number."
4. Set the number for the action. For example, if "Action" is "Preset" and "Number" is "001," this means Preset 1.
5. Select the option "Time." This is the dwell time, the amount of time that the joystick controller can be idle before the camera returns to Home, a preset, a scan, or a tour.
6. Set the desired dwell time (from 1 second to 60 seconds and from 1 minute to 60 minutes).
7. Select the option "Mode."
8. Select the appropriate value: Off (Manual) or On (Auto).
9. Save the settings.

7.6.4 Calibration

Calibration is a function for automatically correcting an error on the angle of Pan/Tilt. Calibration can be set at Auto or Manual. In Auto mode, the camera is corrected automatically whenever there is an error on the angle of the camera. The motor of the Pan/Tilt will adjust its angle automatically. In Manual mode, select the option "Calibration" to execute the function.
Error Message Display is a function for displaying an error message to let a user know when there is an error.

1. From the **MAIN MENU**, select **DOME MOTION**. The submenu **DOME MOTION** appears.
2. Select **CALIBRATION**. The screen **CALIBRATION SETUP** appears.

CALIBRATION SETUP		
AUTO CAL		
ERROR MSG DISP		

CALIBRATION SETUP		
CALIBRATION		
SAVE		
BACK		

1. Select the option "Auto Cal". This function is for automatic calibration.
2. Select the appropriate value: AUTO or MANUAL.
3. In Manual mode, select the option "Calibration" to execute the function using the joystick.
4. Select the option "Yes" or press the [Near] button to continue.
5. Select the option "Error Msg Disp" (Error Message Display).
6. Select the appropriate option: ON or OFF.
7. Save the settings.

7.7 Preset Setup

The camera has a maximum of 210 programmable preset positions. Each of the user-defined presets includes Pan/Tilt/Zoom. To set up (program) a preset:

- From the **MAIN MENU**, select **PRESET SETUP**. The screen **PRESET SETUP** appears.

PRESET SETUP		
NO.		
EDIT		

PRESET SETUP		
TITLE		
D TIME		
CLEAR		
SAVE		
BACK		

1. Select the option "NO.###" to select a preset number.
2. Select the appropriate preset number.
3. Select the option "Edit." A second screen **PRESET SETUP** appears.
4. Using the joystick, move to a desired target (Pan/Tilt/Zoom).
5. Save the settings.
6. Return to the previous screen.
7. Select the option "D Time" to set the dwell time for the preset.
8. Set the desired dwell time (from 3 to 60 seconds).
9. Save the settings.
   Note: Select the option "Clear" to delete the preset.

Notice!
You can also edit the Preset title. Select the option "Title," then edit the title following the steps in *Editing Titles, page 43*.

7.8 Pattern Setup

A Pattern is used to display (or recall) a memorized, repeated and serial trace of pan, tilt, and zoom. The camera has a maximum of 8 Patterns in Pelco protocol mode, and 2 Patterns in Bosch protocol mode. Each of the user-defined scans includes Pan/Tilt/Zoom. To set up (program) a Pattern:

- From the **MAIN MENU**, select **PATTERN SETUP**. The screen **PATTERN SETUP** appears.

PATTERN SETUP		
NO.		
EDIT		
TITLE		
TIME		
CLEAR		
SAVE		
BACK		

1. Select the option "NO.###" to select a pattern number.
2. Select the appropriate pattern number.
3. Select the option "Edit." A second screen **PATTERN SETUP** appears.
4. Using the joystick, move to a desired target.
5. Press the button [Near] to begin programming.

6. Using the joystick, record the scene. Note that 'Time' means recorded time. The maximum amount of time available for recording is 60 seconds.
7. Save the settings.
   Note: Select the option "Clear" to delete the pattern.

Notice!
You can also edit the Pattern title. Select the option "Title," then edit the title following the steps in *Editing Titles, page 43*.

7.9 Tour Setup

The camera has a maximum of 8 Tours in Pelco protocol mode, and 2 Tours in Bosch protocol mode. Each tour can have 28 configurable items. Each item can be a pre-defined preset, pattern, and scan in Tour 2-8. (Only Presets (28 maximum) can be inserted in Tour 1.) To set up (program) a tour:

- From the **MAIN MENU**, select **TOUR SETUP**. The screen **TOUR SETUP** appears.

TOUR SETUP		
NO.###		
(-TOUR1: PRESET ONLY)		
SAVE		
BACK		
- CHANGE ID		
(- CHANGE ACT)		

TOUR SETUP		
(- CLEAR ID)		

1. Select a tour number.
2. Select the first item in the list. From here you can:
   - Press the button [Tele/Wide] to select a Preset, a Pattern, a Tour, and/or a Scan in each item.
   - Press the button[Tele/Wide] to change the number of the action.
   - Press the button [Near/Far] to change the mode of the action.
   - Press the button [Near/Far] to clear (delete) the action in each item.
3. Repeat steps 2 and 3 for additional tours.
4. Save the settings.
   Note: Select the option "Clear" to delete the tour.

7.10 Scan Setup

An Auto scan is a PTZ function that moves the camera from one position to another position. The camera has a maximum of 8 programmable scans. The speed of Auto Scan can be changed from 1 to 35 degree/sec. To set up (program) an auto scan:

- From the **MAIN MENU**, select **SCAN SETUP**. The screen **SCAN SETUP** appears.

SCAN SETUP		
NO.		
EDIT		

SCAN SETUP		
SPEED		
DTIME		
DIRECTION		
MODE		
CLEAR		
SAVE		
BACK		

1. Select the option "NO.###" to select a scan number.
2. Select the appropriate scan number.
3. Select the option "Edit."
4. Select the value "Edit Start Point." The screen **Start Position Setup** appears.
5. Using the joystick, move to a desired target (Pan/Tilt/Zoom) for the starting point of the scan.
6. Save the settings. The screen **Stop Position Setup** appears.
7. Using the joystick, move to a desired target (Pan/Tilt/Zoom) for the stopping point of the scan.
8. Save the settings.
9. Return to the previous screen.
10. Select the option "Speed."
11. Select the desired speed (from 1° to 35°/second).
12. Select the option "DTime" to set the dwell time for the scan.
13. Set the desired time (from 3 minute to 60 seconds).
14. Select the option "Direction."
15. Select the appropriate value for the direction of the scan.

16. Select the option "Mode."
17. Select the appropriate value for the mode. In Auto Scan there are two modes:
    – Endless mode: When the Start Position is the same as the Stop Position, the dome moves around.
    – Coming/Going mode: When the Start Position is different from the Stop Position, the dome moves repeatedly from one position to another.
18. Save the settings.
    Note: Select the option "Clear" to delete the scan.

Notice!
In order to call an action (Preset, Pattern, Tour, or Scan), you must save Preset, Pattern, Tour, or Scan first.
You can also edit the Scan title. Select the option "Title," then edit the title following the steps in *Editing Titles, page 43*.

7.11 Alarm Setup

This menu controls alarm inputs and outputs. To set alarms:

1. From the **MAIN MENU**, select **ALARM SETUP**. The screen **ALARM SETUP** appears.
2. Select the option "NO.###" to select a preset number.

ALARM SETUP		
NO.		
IN		
OUT		
PRIORITY		
ACTION		

ALARM SETUP		
NUMBER		
ATIME		
SAVE		
BACK		
- SET/CLEAR		

1. Select the appropriate alarm number.
2. Select the option "In" to select the alarm input type.
3. Select the appropriate value: N.O. (Normally Open) or N.C. (Normally Closed).
4. Select the option "Out" to select the alarm output.
5. Select the appropriate value: ON or OFF.
6. Select the option "Priority."
7. Select the appropriate priority from 1-4.
8. Select the option "Action."
9. Select the appropriate action: Off, Preset, Pattern, Scan, or Tour.
10. Select the option "Number."
11. Select the number of the action (Preset, Pattern, Scan, or Tour).
12. Select the option "ATime" to set the alarm time for the action.
13. Set the desired dwell time:
    - Time Out (3-60seconds). This is activated during a selected dwell time when an alarm is triggered.
    - Momentary (On): When an alarm is triggered, the camera will maintain alarm activation continuously, until it is stopped manually (96+preset in Pelco protocol; [Off]+[65]+[Enter] in Bosch protocol).
14. Save the settings.
    Note: Select the option "Clear" to delete the alarm.

Notice!

In order to call an action (Preset, Pattern, Tour, or Scan), you must save Preset, Pattern, Tour, or Scan first.

8 Troubleshooting

If problems occur, check the installation of the camera with the instructions in this manual. Refer to this guide for further information.

Problem	Solution
No video on screen.	- Verify that the power is connected to all components in the system. - Verify that the power switch is ON. - Verify the status of cables or the connection of cables.
Poor video quality.	- Check the power supply voltage (normal 24 VAC) directly at the camera. - Check the camera settings. - Check the video quality directly at the camera with a service monitor. - Check the quality and length of video cables, and possible EMC interference. - Check the quality of connectors and potential moisture/corrosion. - If the lens or the dome window is dirty, clean it with a clean cloth.

Problem	Solution
Camera is not working properly (including wrong position of camera).	- Power-cycle the camera and power supply, or reset the camera using the configuration menu [Main > System > Reboot]. - Check the connection of the power cable and the status of the camera. - Initialize the camera [Main > System > Initialize]. - Check the power rating of the power supply. - Measure the voltage at the camera (since there could be a drop in voltage due cable length). The power consumption increases when the camera is moving (especially at high speed) and when the heater is on. The voltage at the camera should always be 24VAC (+/- 10%).
The communication between controller and camera (via RS-485 cable) is not working properly.	- Check that the RS-485 cable is connected correctly. - Check the ID/Protocol/Baud rate/ Termination setting.

Problem	Solution
The surface of the dome case is hot.	- Check the voltage level of the dome camera and the status of the camera. - Check that the camera is connected to the proper power.
The image on the screen flickers.	- Check to see if the camera faces directly into the sun or a fluorescent lamp. If so, reposition the dome. - Check for flickers on the screen.

9 Technical Specifications

Camera Module	
Imager	1/4" Double Scan, Super HAD CCD
Effective Pixels	NTSC: 976(H)*494(V), PAL: 976(H)*582(V)
Resolution	600 TVL
Zoom ratio	26X Effective Optical Zoom/10X Digital Zoom (Auto Focus)
Lens	fW=3.49 ±0.17mm fT=104.02 ±5.20mm (30X +/- 10% Optical Zoom)
View Angle (Approximate)	69.5° to 2.46°
Day/Night	Mechanical Day/Night filter
Minimum Illumination	0.2 Lux/ F1.65, 0.001 Lux/DSS, 0.1 Lux/ICR
Signal-to-Noise Ratio (SNR)	>50 dB
Wide Dynamic Range (WDR)	On/Off
Dynamic Noise Reduction (DNR)	3 DNR
Privacy Masking	15 zones maximum
Maximum Preset Speed	360°/sec
Flip	Rotate 180° at bottom of tilt
Auto Scan	2/8 Auto Scan modes including vector scan

Camera Module	
Preset Position	99/210 Positions with camera status
Tour	2/8 Tours (Preset, Pattern, Scan)
Pattern	2/8 Patterns
On-screen Display (OSD)	Display camera ID, Title, Mode, and Angle on-screen(Multi-Language)
Multi-language OSD	English, Chinese, Dutch, German, French, Italian, Russian, Spanish
Electrical	
Power Supply	24 VAC (±10%) Normal, Built-in Power Line Surge
Power Requirements	Adaptor 24VAC, 1A (2.5A with heater)
Power Consumption	24 VAC, 850mA / 20W (without heater)24 VAC, 2A / 45W (with heater)
Alarm Input	4 Normal Dry Contact (Selectable NC/NO)
Alarm Output	1 Normal Relays 5VDC/40mA Max (Selectable NC/NO)
Control	RS-485 baud rate: 2400~38.4Kbps (default: 9600bps)
Access Time	0.75 second maximum preset recall time
Camera Address / ID	Physical 99

Camera Module	
Mechanical	
Weight	1.5 kg
Dimension	Ø154 x 138 mm (H) (Bubble Dome Ø110)
Pan Angle	360° Continuous rotation
Environment	
Operating Temperature	-10 °C to +50 °C (14 °F to +122 °F) (heater off) -40 °C to +10 °C (-40 °F to 50 °F) (heater on)
Heater (Built-in)	On/Off: 0 °C to 10 °C
Operating Humidity	~80% relative humidity (RH)
Storage Temperature	-20 °C to +60 °C (-4 °F to +140 °F)

10 Dimensions

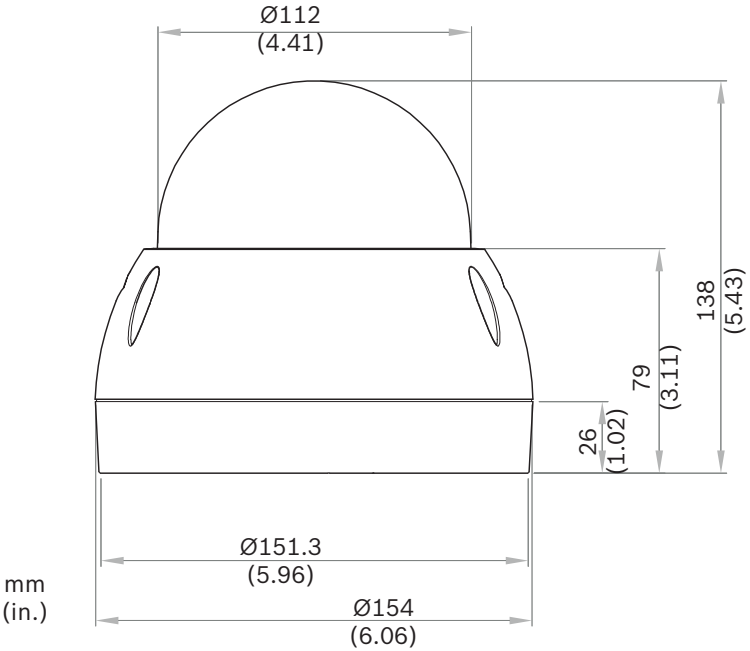


Figure 10.1: Dimensions - Camera

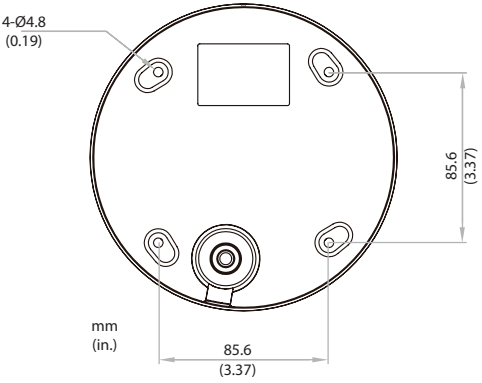


Figure 10.2: Dimensions - Mounting Holes

11 Bosch Protocol

The following table lists camera functions in Bosch protocol.

Preset	Key	Preset Number	Example
Function	Activate / Deactivate	Command	Example
Auto Scan 1	On/Off	Scan 1	ON +1+Enter
Auto Scan 2	On/Off	Scan 2	ON +2+Enter
Pre-Position Tour	On/Off	Tour 1	ON +8+Enter
Group Tour	On/Off	Tour 2	ON +9+Enter
Backlight Compensation	On/Off	Backlight Comp.	ON +20+Enter
Enters White Balance menu	On/Off	WB Setup	ON +35+Enter
Restores Camera Settings	On	Camera Default Restored	ON +40+Enter
Enters Main Setup Menu	On	Main Menu	ON +46+Enter
Playback A (Continuous)	On/Off	Pattern 1	ON +50+Enter
Playback A (Single)	On/Off	Pattern 1	ON +51+Enter

Preset	Key	Preset Number	Example
Playback B (Continuous)	On/Off	Pattern 2	ON +52+Enter
Playback B (Single)	On/Off	Pattern 2	ON +53+Enter
Enters Alarm Menu	On	Alarm Menu	ON +64+Enter
Acknowledge Alarms and Deactivate Alarms	Off	Alarm Action stopped	Off +65+Enter
Displays SW version no.	On	*SW Ver. Displayed	ON +66+Enter
Changes to Digital Zoom mode	On/Off	*Digital Zoom	ON +80+Enter
Enters Privacy Masking menu	On/Off	Privacy Masking	ON +87+Enter
Record A: Enters Pattern Setup menu	On/Off	Pattern 1	ON +100+Enter
Record B: Enters Pattern setup menu	On/Off	Pattern 2	ON +101+Enter
Pre-Position Programming	Set	Preset 1-99	Set +99+Enter
Pre-Position Recall	Shot	Preset 1-99	Shot +99+Enter

Preset	Key	Preset Number	Example
Set-recalibrate Home Position	Set	Run Calibration	Set +110+Enter
Restores all settings		Factory Reset	Set +899+Enter

* SW Version Number displays 5seconds.

*OSD message “D.ZOOM” in D.Z range displays 2 seconds.

12 Pelco Protocol

The following table lists camera functions in Pelco protocol.

Preset	Key	Preset Number	Operation	Example
Preset	Preset	1-59, 101-250	No. +Preset	1+Preset
Preset shortcut saving	* Preset	1-59, 101-250	*	*
Run PAN	Preset	33	No. +Preset	33+Preset
Run PAN ZERO	Preset	34	No. +Preset	34+Preset
Scan Setup	Preset	60	No. +Preset	60+Preset
Scan	Preset/Scan	61-68	No. +Preset	61+Preset 1+Scan
Tour Setup	Preset	70	No. +Preset	70+Preset
Tour	Preset/Tour	71-78	No. +Preset	71+Preset 1+Tour
Pattern Setup	Preset	80	No. +Preset	80+Preset

Preset	Key	Preset Number	Operation	Example
Pattern	Preset/ Pattern	81-88	No. +Preset	81+Preset 1+Pattern
ENT Key	Preset	90	No. +Preset	90+Preset
Run HOME	Preset	91	No. +Preset	91+Preset
CLR Key	Preset	92	No. +Preset	92+Preset
ENT2 Key	Preset	94	No. +Preset	94+Preset
MENU Key	Preset/ **Menu	95	No. +Preset	95+Preset
ESC Key	Preset	96	No. +Preset	96+Preset
D.Zoom (Toggle)	Preset	97	No. +Preset	97+Preset

Notice!

#

- To save position of the dome, press the desired preset number and hold the [PRESET] key for 2 seconds.- To go to the MAIN MENU, press and hold the [MENU] key for 2 seconds.

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